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SOME SOCIOLOGICAL ASPECTS OF THE PROBLEM OF COCAISM 1/

by

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1/ The appended document by Prof. Marcel Granier-Doyeux was originally presented to the Consultative Group on Coca Leaf Problems which met at Lima from 26 November to 7 December 1962, and has been published in the Bulletin on Narcotics, Vol XIV, No. 4. It will represent a valuable contribution to this meeting also and it is therefore distributed to participants.

SOME SOCIOLOGICAL ASPECTS OF THE PROBLEM OF COCAISM

THE PROBLEM

Although "cocaism" means the habit of chewing coca leaves, the problem with which we are dealing should not be considered in isolation : it must be regarded as the result of a number of factors, the most important of which are ethnic, economic and social. The living conditions to which these factors give rise affect mainly, though not exclusively, the indigenous and half-breed elements of the population of the coca-producing countries.

The regeneration of the mass of the indigenous peoples of America has been the subject of a deep concern which goes back to the fairly distant past. Many measures have been suggested in an endeavour to rescue the unhappy indigenous masses from the state of cultural backwardness and perpetual poverty which characterizes the really sub-human conditions in which they lead their miserable lives. Experts in education and in health, sociologists, scientific investigators, ethnologists, priests, moralists, etc., have all tried to bring about the assimilation of these millions of human beings into the normal life of civilized peoples and to transform them into active members of society taking part in the economic development of the nations to which they belong.

It is unnecessary to go over the history of this vice, nor is it proposed to revive the bitter controversy between those who defend the "sacred leaf" and those who advocate a campaign against the inveterate habit of chewing coca. All the material necessary for a full understanding of the problem will be found in a number of previous issues of the Bulletin on Narcotics[1/], in the official Report of the United Nations Commission of Enquiry on the Coca Leaf[2/] and in many other publications. The essential fact is that the coca leaf contains an active constituent in the form of an alkaloid - namely, cocaine. According to existing scientific knowledge, the physiological effects produced by coca leaf chewing can be explained only by the

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1/ Vol. I, No.1; Vol.II, No.1; Vol.II, No.4; Vol. IV, No.2; Vol.IV, No.3; Vol. V, No.4; Vol.XIII, No.1; Vol.XIII, No.4; Vol.XIV, No.1.

2/ Report of the Commission of Enquiry on the Coca Leaf (see bibliography).

action of this alkaloid, the extraction of which is facilitated by the use of alkaline substances and which is unquestionably absorbed into the organism of the coca chewer ("coquero" or "coqueador").

Those who defend coca claim that cocaism is entirely different from cocainism, and that it cannot be regarded as a real instance of drug addiction, since the effects it produces are not covered by the definition given by the Expert Committee on Drugs liable to produce Addiction - viz.:

"Drug addiction is a state of periodic or chronic intoxication, detrimental to the individual and to society, produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include (1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means; (2) a tendency to increase the dose; (3) a psychic (psychological) and sometimes a physical dependence on the effects of the drug." (World Health Organization, Technical Report Series, No.21)

Before becoming a member of the Commission of Enquiry on the Coca Leaf appointed by the United Nations in 1949, I had taken a great interest, since 1938, in the problems arising from the use and abuse of addiction-producing drugs. Contrary to the views expressed by certain critics of that Commission's report, we were far from being ignorant or unaware of the coca problem. For this reason, I consider myself qualified to say that, while in many cases cocaism does not constitute true drug addiction, it is nevertheless a vice which, in the case of certain individuals - and they are by no means few in number - can take on all the characteristics of drug addiction as defined by the Expert Committee of the World Health Organization. Moreover, whether or not it constitutes genuine drug addiction, it is impossible to deny the harmful effects of coca chewing. The deadening of the feeling of hunger is one aspect which, by establishing a vicious circle, aggravates the well-known malnutrition of the coca chewer. The absorption of cocaine, the active constituent of coca, causes well-established changes in the intellectual faculties of the person chronically intoxicated by it. Output of work is undoubtedly affected, because the alleged "stimulating effect" is nothing more than a state of abnormal excitation. Such lack of productivity has harmful effects on the economy. Nor can it be claimed in favour of coca that it has nutritive value like other plants, since it is hardly wise to make use of a foodstuff which, in addition to its nutritive content,

incorporates a substance which is unquestionably toxic - namely, cocaine. I sincerely believe that coca chewing can in no circumstances be regarded as a substitute for a proper diet.

Again, there is no good reason for supposing that cocaine acts in a different way on persons living at high altitudes or produces a different effect upon them. The fact is that the inhabitant of the Andean region is fully acclimatized to life at such great altitudes, and his organism functions strictly in accordance with the laws of physiology established by science. Despite the strenuous efforts made by the supporters of coca, it has never yet been proved scientifically that coca chewing is a useful factor, still less a necessary one, in acclimatization to life at high altitudes. The best example that can be given is that of the very large number of people not born on the high plateaux who have fully acclimatized themselves to life in that region without needing to have recourse to coca leaf chewing.

As I have already pointed out, we are dealing with a complex phenomenon which is the result of a number of adverse influences, mainly of a sociological and economic nature. A solution for the problem should therefore be sought in improving the living conditions of the inhabitants and by putting an end to this most undesirable state of affairs. Cocaism is a harmful habit which can be stopped provided, and only provided, that the circumstances and the other factors which give rise to it undergo a real change. Nevertheless, in the light of the social and economic factors governing the problem, a radical and immediate suppression of coca cultivation, and therefore of cocaism, is out of the question. Too much haste in introducing measures to eliminate it would aggravate the present situation instead of providing a solution. It is extremely important to bear in mind the disastrous consequences brought about by measures of prohibition that are carried out from the start in too drastic a manner. I still believe, as we stated in the report drawn up by myself and the other members of the United Nations Commission of Enquiry, that suppression must be gradual - that is, by "a process which, while taking into account the complexity of the problem, should not be so long as to permit the harmful continuation of the habit nor so short as to damage the economic interests involved."

As Mario A. Puga rightly says, "The link between the coca habit and the problem of the Indian as a whole is so close that they are one and the same, just as the Indian problem is linked to the social problems of our peoples. Addiction has flourished and continues to flourish before the very eyes of the ruling bureaucracy

and the dominant families, thanks to an inhuman social system and to an ignoble custom of earning profits at the expense of the nation's life and future."

Carlos Gutiérrez Noriega, Vicente Zapata Ortiz and their numerous and able followers, so violently attacked by supporters of coca, have summed up the problem in the following words: "Whereas in our country (Peru) much money and effort are devoted to the solution of other problems, not the smallest attention has been paid to the coca problem"[3/]. In short, cocaism is not acknowledged to be a problem that affects our national well being. It should not be forgotten that over two million people are addicted to this habit (in Peru)." They very properly go on to give it as their considered opinion that "production of, and trade in, coca should be restricted and an active propaganda campaign should be waged against its use."

As is generally known, the spread of the habit of chewing coca leaves goes back to the earliest years of the conquest, the immediate and logical consequence of which was the multiplication of plantations. This spread had the following causes, among others:

(a) Trade in coca was one of the most lucrative forms of business during the colonial era;

(b) It was during that period that the marked decrease in the production of foodstuffs took place, so that the coca-chewing habit became indispensable as a means to assuage the pangs of hunger;

(c) Forced labour in the mines also made coca an essential commodity, since coca leaf chewing produces an illusion of physical strength and banishes fatigue.

This custom continued during the republican era; so serious and so complex is the problem to which it gives rise that it was finally brought before the United Nations, the supreme international body. The United Nations decided to appoint a commission, which embarked on a study of this problem.

As this article is confined to the sociological aspects of the question, it has been divided into the following sections:

- The geographical distribution of the zones in which the coca leaf is produced and in which it is chewed
- The environment

3/ These words were written in 1946.

- The human element involved in coca-chewing
- Housing conditions under which coca chewers live
- Nutrition
- Living and working conditions
- Education
- Health conditions
- Economic factors
- General conclusions

GEOGRAPHICAL DISTRIBUTION OF THE ZONES IN WHICH THE COCA LEAF IS PRODUCED AND IN WHICH IT IS CHEWED

Coca can be grown in tropical and sub-tropical regions. It accordingly does very well in various parts of Central and South America, the West Indies, Australia, Indonesia, India and Africa.

At the present time, chewing takes place mainly in the republics of Bolivia and Peru, but there are also coca-chewing regions in other countries, although they are of much less importance. To facilitate the account, each of these countries will be considered in alphabetical order.

(1) ARGENTINA. It has been mentioned that coca chewing occurs in some areas in the north of the country (provinces of Salta and Tucumán; perhaps in that of Jujuy also). Here, the persons addicted to it are reported to be Bolivian agricultural labourers. In fact, Argentina cannot be regarded as a country that produces coca leaf, and cocaism is not really a problem there.

According to statistics prepared by the Permanent Central Opium Board, the quantity of leaf consumed in recent years was as follows (in tons):

1954,	129	1956,	14	1958,	80	1960,	86
1955,	135	1957,	152	1959,	115		

One feature that cannot be ignored is the illicit traffic. This is of particular importance in connexion with cocaine addiction, but it is not without interest, though to a lesser degree, where cocaism is concerned. In 1960, the Under-Secretary of the Argentine Ministry of Social Welfare and Public Health, Mr. Andrés Martínez Marchetti, reported that coca leaf was brought in clandestinely from Bolivia in three ways:

(a) By persons who cross the frontier daily through inhabited areas and conceal the contraband in their clothing; this is called "ant smuggling";

(b) By persons using forms of transport such as the railway, cars, lorries, etc., the coca leaf in this case being carried in the luggage or among the freight;

(c) By persons who cross the frontier in uninhabited areas, and are thus able to avoid official controls. The same writer observed that, in 1955, the maximum quantity of coca leaf smuggled in was 34 tons. The minimum figure recorded was 2 tons, but fluctuations are extremely wide.

(2) BOLIVIA. This country is, after Peru, one of the main producers of coca leaves. According to information obtained by the United Nations Commission, the chief producing zones are:

Departments	Provinces	Per cent of total population
La Paz	Sud Yungas Nor Yungas Inquisivi Caupolicán Murillo Muñecas	89
Cochabamba ..	Chaparé Carrasco Arani Quillacollo Cliza	10
Santa Cruz ..	Cercado Sara Valle Grande	1

(Note: Some was apparently produced from time to time in the Departments of Tarija and Beni).

The map in figure I shows the main coca growing zones in Bolivia. It was drawn up in 1949 by the United Nations Commission of Enquiry on the Coca Leaf.

The names of those departments where the coca leaf is chewed are underlined, while the shading indicates the approximate areas in which coca leaf plantations are located.

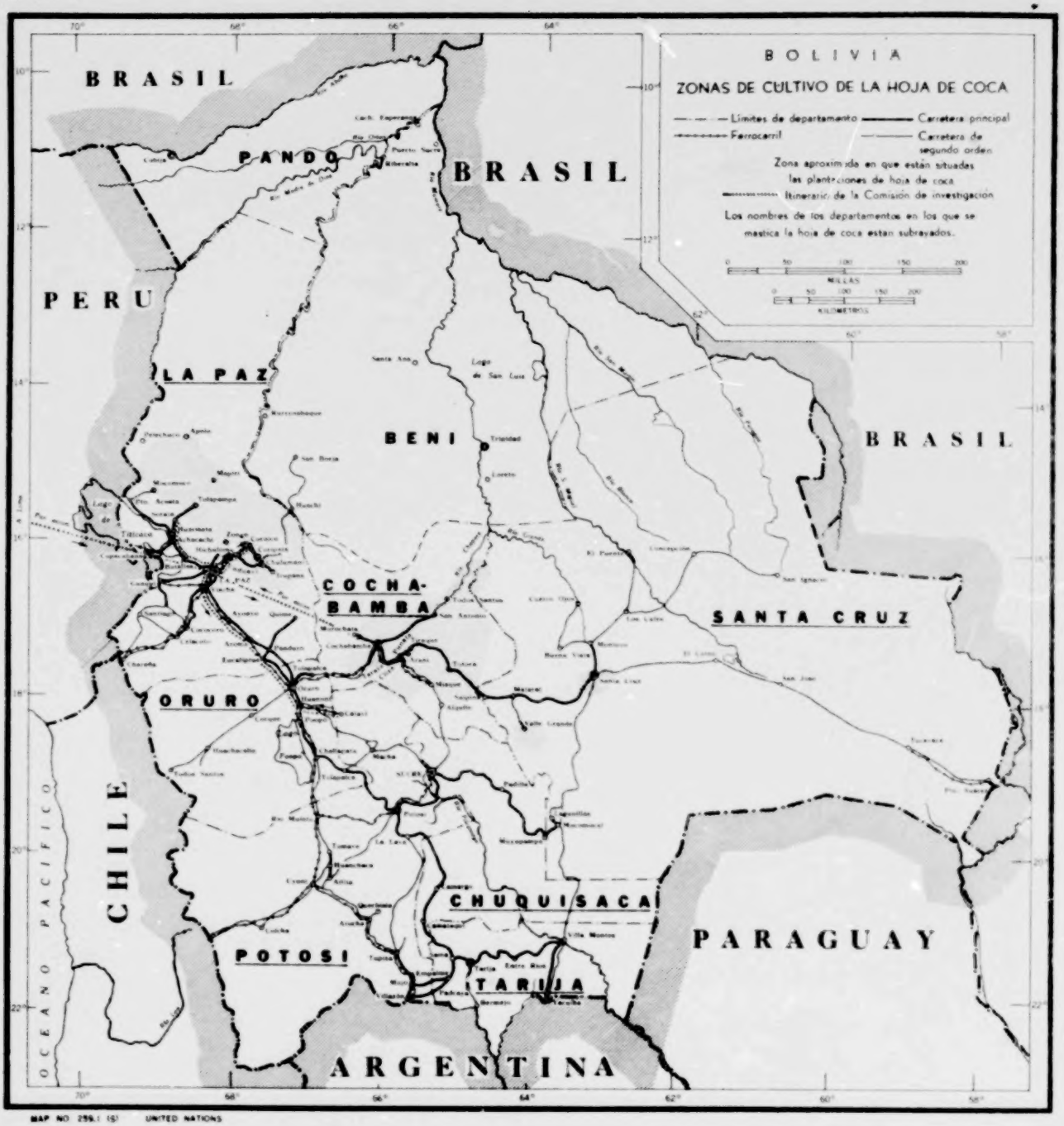

Figure I
Coca leaf growing areas in Bolivia

The Commission encountered one of its most serious obstacles when it attempted to establish precisely the coca growing and chewing areas and the quantity of coca leaf produced annually, for at that time there was still no reliable system of registration. There was no way of obtaining accurate statistical data, either about the number of hectares under cultivation or about annual production. The figures obtained from different sources varied considerably, and usually did not tally. The most accurate were the figures for that part of the output which came on the market after payment of the official tax. Although from purely arithmetical points of view these figures were accurate, they referred only to that proportion of the coca leaf production that had passed through the hands of the excise authorities; they do not represent the quantity actually produced.

Let us take some of these figures as an example. In 1938, according to the Government of Bolivia's reply to the United Nations questionnaire (E/CN.7/110), the production of coca leaf amounted to 7.125.900 kg. in the department of La Paz, and 209.760 kg in the department of Cochabamba. If the smaller amounts produced in other areas are added to this, a total annual production of 7.336.000 kg is indicated.

In 1939, total production (that could be checked) was very similar - 7.850.000 kg.

On the other hand, in the period between that date and the present time, production has been decreasing. It remained at an average of about 4.565.000 kg up to the year 1949/50; in 1954, it dropped to 2.764.000 kg, and in 1957 to 2.590.000 kg. At the session held in Geneva in 1959, the Bolivia observer, Mr. Enrique Gerardia, said that, during the year 1958, his government had taken a series of measures to reduce in some considerable measure the use of coca leaf for chewing (see document E/3254).

There can be no doubt that the Bolivian Government is firmly determined to continue its efforts until total suppression has been achieved. Up to now, it has acted circumspectly and gradually, and has thus made a valuable contribution to the international campaign against this harmful habit.

(3) BRAZIL. It has been stated that coca chewing occurs in certain areas of the Amazonian region (along the Purús and Amazon rivers). The habit of eating these leaves in the form of a powder (ipadú) has also been reported.

The Government, acting through the National Commission for Control of Narcotic Drugs, is on the alert and keeps a continuous watch on all reports reaching it about coca consumption. Thus, for example, Dr. Eleyson Cardoso, a former Federal Commissioner of Public Health, was able to establish that chewing existed in the Amazon region, along the whole length of the Juparana river. Nevertheless, however that may be, there is no real problem of cocaism in Brazil.

(4) CHILE. Here the problem involves merely a small group of Bolivian labourers who for the most part work in the mining areas fairly close to the frontier between Chile and Bolivia. To all intents and purposes, the problem of cocaism does not arise in Chile.

(5) COLOMBIA. This country is a particularly interesting example, because it shows the excellent results that can be obtained by the introduction of restrictive measures that have been well thought out in advance and take account of local peculiarities.

Although in Colombia the problem was never so serious as in Bolivia and Peru, this country may be regarded as occupying the third place in respect of coca leaf production and consumption. Another fact worth noting is that, in addition to the traditional method used for coca leaf consumption - a method which is common to all Andean countries - another "technique" is also employed in Colombia. This has been well described by R.E. Schultes; it is used in the Amazonian region of the country, and in essence consists of roasting and pulverizing the leaves. To obtain an alcalizer, the resultant powder is mixed with the finely sifted ash of the leaves of one of the various species of Cecropia or Pourouma (P.Cecropiaefolia Mart.). In 1952, the same writer came across another method used by the Tanimukas near the Igarapé Peritomé. The "refinement" of this method consists in using the resin of Protium Heptaphyllum March. By using this technique, which is extremely complicated, it is possible to change the taste of the powdered coca leaves, but its effects remain the same.

In 1952, Professor Jorge Bejarano published in the Bulletin an excellent article entitled "Further considerations on the coca habit in Colombia".[4/] In the course of it, the writer lists the departments where coca is grown and the quantity of leaf produced. The information provided by him may be summarized as follows :

4/ Bulletin on Narcotics, Vol. IV, No.3.

Departments	Hectares under cultivation	Number of trees	Production in kg
Cauca	387	30.425	103.560
Huila	480	110.100	83.200
Santander	-	129.000	-
Boyaca	-	2.500	200
Total	767	277.025	186.960

These figures are lower than those reported in previous years by the Colombian Government. In answering the questionnaire, it gave the following figures :

Year	Annual Production (in kg)
1942	380.000
1945	210.000

As will be seen, there was thus a significant decrease in production. This is even more noticeable in more recent statistics:

Year	Annual Production (in tons)
1954	180
1955	180
1956	150
1957	140
1958	120
1959	100
1960	100

In a much more recent publication (1961) Bejarano gives further particulars which are of very great interest.

(6) ECUADOR. There is a considerable historical evidence for the existence of coca leaf chewing in this country. Nevertheless, despite the fact that no entirely satisfactory explanation is available, at the present time there is no cocaism problem in Ecuador. The only indication of it is that, in the province of Azuay, the practice of chewing occurs on a very small scale.

(7) PERU. This country unquestionably takes the first place as a producer and consumer of coca leaves. A further undoubted fact is the effort made in recent years to try to bring about a gradual restriction both of production and consumption. It is very difficult, however, to come to any definite conclusion about the results achieved by this strenuous campaign.

The main difficulties are the following :

(a) Until the investigation by the United Nations Commission of Enquiry on the Coca Leaf, statistical data referred to coca "in circulation" on which tax had been paid;

(b) A very large quantity of leaves was intended for chewing, but had not been "placed in circulation", an expression meaning that it had not paid tax, and therefore was not included in the statistics;

(c) As in the case of Bolivia, already mentioned, there was no reliable register in Peru.

The map in figure II shows the main coca leaf growing areas and the places or regions where it is chewed.

By various methods, the United Nations Commission came to the conclusion that the average annual production of coca leaf in Peru was 7.000 tons. According to information published by the Peruvian Coca Monopoly in its memorandum "Ten Years of the Coca Monopoly in Peru"[5], annual production in Peru was as follows :

Year	Kilogrammes	Year	Kilogrammes
1949	7.616.035.671	1955	10.238.515.707
1950	8.075.103.074	1956	9.625.229.253
1951	8.640.807.315	1957	10.012.835.110
1952	10.092.933.337	1958	9.378.795.215
1953	9.127.637.438	1959	9.206.360.362
1954	9.943.512.921	1960	9.003.274.921 [6]

5/ Bulletin on Narcotics, Vol. XIV, No. 1.

6/ See Memoria del Estanco de la Coca, 1960.

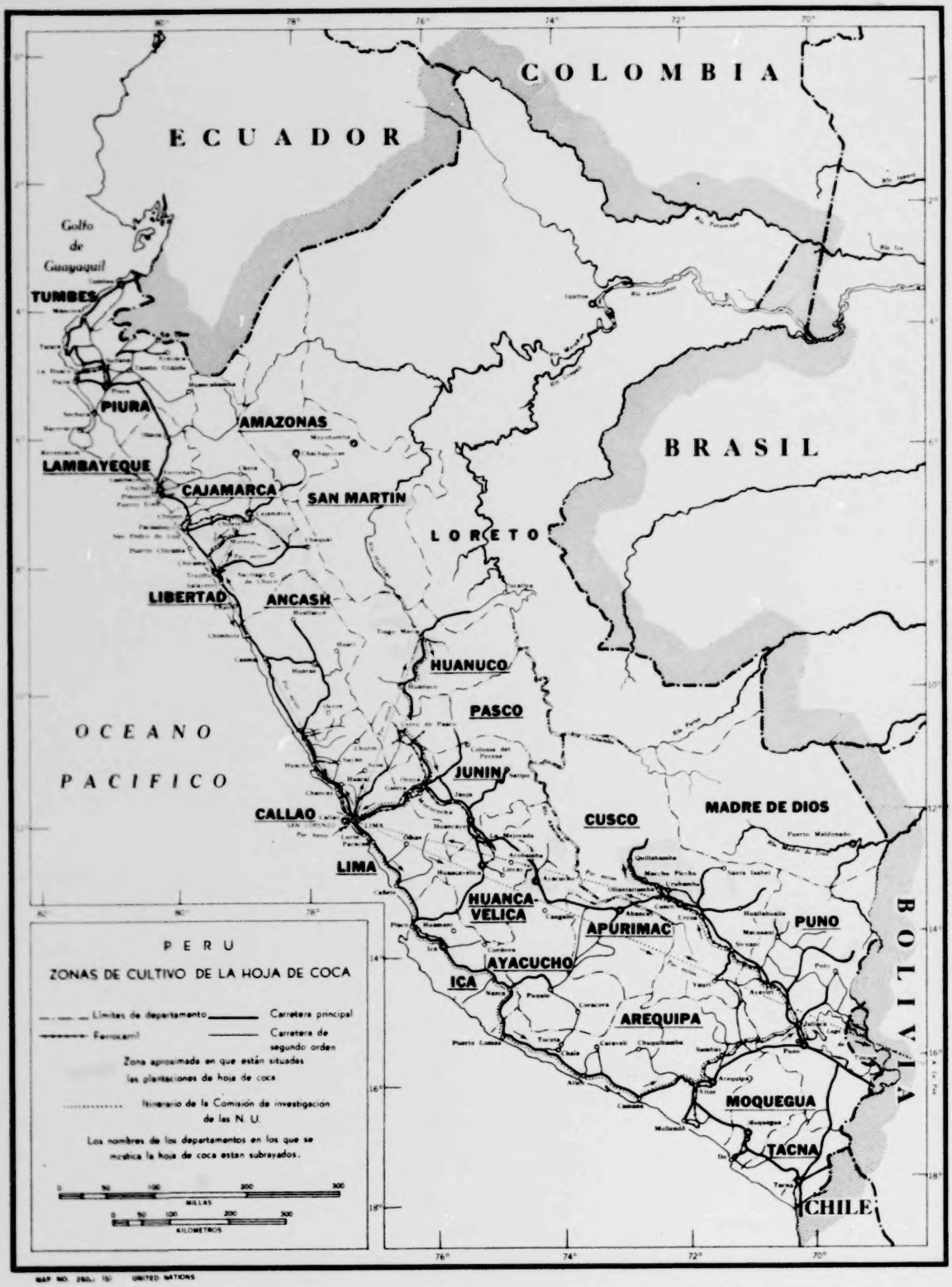

Figure II
Coca leaf growing areas in Peru
(Report op. cit.)

In 1958 the Peruvian representative to the session of the Commission on Narcotic Drugs in Geneva, Mr. Cesar Gordillo Zulette, said that production of coca leaves had fallen to 9.377.830 kg. He also said that in that year no new licences for coca cultivation had been granted.

The following statistics about the quantity of coca leaves for chewing appear in Permanent Central Opium Board document E/OB/17.

Year	Kilogrammes
1954	9.250.000
1955	9.319.000
1956	9.450.000
1957	9.954.000
1958	9.203.000
1959	8.789.000
1960	8.793.000

Notwithstanding this, Peru continues to be the main producer of coca leaf.

(8) VENEZUELA. Small groups of coca chewers have been found in certain parts of this country, near the Colombian frontier, but the information obtained does not lead to the conclusion that there is a real cocaism problem in Venezuela.

The ENVIRONMENT

It will be clear from the preceding section that the problem of cocaism is particularly serious in the republics of Peru, Bolivia and Colombia. It is, however, much less so in the last-mentioned instance; moreover, there are some fairly striking differences between Colombia and the two first countries so far as the "coca chewing environment" is concerned.

In the case of Bolivia and Peru, chewing takes place chiefly on the Altiplano (high plateau) or Puna (tableland). At these high altitudes living conditions are very harsh; the land is flat and without vegetation, food is scarce, and for a great part of the year these regions are swept by icy winds. The interminable stony plains, without a single tree, and the intense cold make these regions far from hospitable.

The environment may be classified in three separate regions, as was done by the United Nations Commission :

(1) Regions where very large quantities of coca leaves are produced and consumed;

(2) Regions of little or no production, but high consumption;

(3) Regions in which there is little or no production or consumption.

An instance of the first category is the Department of Cuzco (Peru), the largest producer of coca leaves, and one of the largest consumers. Another example is the Department of La Paz, which is divided into two regions, the Altiplano and the Yungas, the latter being semi-tropical.

The second category is exemplified by the Department of Puno (Peru); although this is one of the largest consumer regions, production does not play an important role in the economy. Another instance is Pasco, also in Peru. This is a very important mining centre; its mean altitude is 3.400 metres. The capital, Cerro de Pasco, is more than 4.000 metres above sea level. Its climate is intensely severe and cold, and snow lies almost permanently. There is no production there, but consumption is extremely high. A very similar case is that of the Department of Oruro, Bolivia, which is essentially a mining region. As an instance of the third category, there is Tingo María, in Peru, where there is some production of coca leaves, but almost no consumption. In Cochabamba (Bolivia), which is at an altitude intermediately between the high plateau and the low-lying regions, and has a good climate, and where conditions are favourable for agriculture, there is some production but little consumption.

In Colombia, as Jorge Bejarano has pointed out, the environmental conditions are not the same. Climate and ethnic factors are less harsh but food deficiencies exist. The campaign against cocaism has achieved very encouraging results in the Department of Huila, but in that of Cauca results have so far been negligible.

THE HUMAN ELEMENT

The difference between the various ethnic groups constituting the population of the coca countries is of particular interest, and requires a specific reference. There are three groups, which are ordinarily designated as follows : (1) Indians; (2) mestizos (half-breeds); and (3) whites.

The second Inter-American Indigenist Congress (1949) defined the Indians as the descendants of the pre-Colombian peoples having a common social consciousness, based on their work, their language and their traditions, though all of this may

have undergone modifications. Almost all the coca leaf chewing population belongs to this racial group, but this does not mean that all Indians are chewers, though the great majority are. Chewing is practised by some mestizos, although to a much smaller extent. The very few whites who chew coca leaf must be regarded as isolated cases. Nevertheless, this classification by races is from our point of view a relative term and can only be accepted in certain cases. In our opinion, what is much more important is to examine the social and economic conditions of the Indian population. It is indeed saddening to have to recognize with Mario A. Puga that, "of the 30 million Indians belonging to the aboriginal peoples who still survive, four-fifths live in a state of misery, social oblivion and utter hopelessness. Only a tiny minority are ordinary citizens and active members of the community, playing their part in work and production. Between these two extremes there are several million metizos, who are Indian in their social habits and economic circumstances or by cultural affinity in language and traditions, and live at a level very near to that of the Indian masses."

In the case of Bolivia and Peru, the indigenous population consists essentially of two main ethnic groups, the Aymarás and the Quichuas. While there are certain differences between these two groups, they also exhibit common characteristics, particularly so far as the social and economic conditions under which they live are concerned. The chewing habit is to be found mainly among the rural population (farmers), miners, shepherds, factory workers, porters, etc.; thus the vast majority belong to the proletariat. Even women and children may become coca chewers in some regions and many provinces of the high plateau. With regard to Colombia, Jorge Bejarano noted that, while conditions there are not the same as in Bolivia and Peru, there is one factor that they all have in common - namely, nutritional deficiency, which is much worse in areas where chewing is practised. In Colombia, too, it is among the indigeneous peoples that the chewing habit occurs.

In the present state of knowledge of the subject, it has not been possible to support the hypothesis that the natives of the high plateau belong to a race subject to special physiological laws; nor are there sufficient reasons for believing that cocaine (the active constituent of the coca leaf) has a different effect on them. Again, it has not been scientifically proved that coca can play a useful part in acclimatizing man to high altitudes.

There can be no question that the chewing habit has harmful effects on the social reactions of those who have acquired it and makes it difficult for them to live together with other members of the community.

HOUSING CONDITIONS

The decisive role of housing in human affairs has been conclusively proved. Wretched and insanitary housing conditions do untold harm from the social point of view and from the point of view of hygiene. Among the worst of the evils afflicting the helpless indigenous peoples in vast areas of America are their miserable, primitive hovels, which are no more advanced than those of their remote ancestors. Far from constituting a welcome place of refuge which might play its part in developing the personality of those dwelling there, the Indian's repulsive hut can inspire in him only aversion and despair.

The building material generally used is beaten earth. Floors are usually of earth. Roofs are almost always made of dry twigs or sometimes of zinc sheets. Usually, there are no doors or windows; access to the hut is by one or two openings, which are closed with pieces of hide or matting. There is no chimney. Furniture is practically non-existent; people living in these houses generally sleep on hides and sit on the ground.

The shape of these dwellings varies. At Puno, for example, on the shores of Lake Titicaca, they are almost always rectangular. Behind the village of Uncia, we noted some dwellings in the shape of a round tower.

These houses often have only one room, and are not divided up by any partitions or walls. Despite the severe climatic conditions, there is no heating; fire is used only for cooking food. Generally speaking, wood is not available and the commonest fuel is the dried dung of the llama or vicuña. Electric or gas lighting is practically unknown in almost any of these rudimentary dwellings; even primitive illumination by candle-light is too much of a luxury.

The housing conditions of the poorer classes in the towns are not much better, particularly in the suburbs where the Indians live. Even in Lima, the capital of Peru, the problem of housing the working classes is a serious one and has moreover become still worse as a result of the great influx of Indians into urban centres. At La Paz, Bolivia, such people are increasingly relegated to the steep slopes of the mountains.

Shortcomings in housing conditions are not confined to the Indian population, but also affect the mestizos. The latter generally live in old and dilapidated houses, in the worst possible sanitary conditions.

The importance of undertaking a decisive campaign to improve housing conditions can never be sufficiently stressed. It is indispensable for that reason that action should be taken quickly and that every possible effort should be made to cope with one of the most serious problems affecting many human beings living in the New World.

NUTRITION

It is a universally acknowledged and accepted fact that the diet of the Indian throughout the American continent is insufficient and inadequate. Innumerable studies of this important problem have been published; they can all be summed up in Gabriel Garcés' view that "the diet of the Indian of this continent is insufficient and wholly inadequate to compensate for the energy he expends in his daily work." Moreover, the problem is even more acute in the case of coca chewers. As Gutiérrez Noriega said, "Inadequate nutrition leads to coca chewing and this in turn by destroying appetite, leads to inadequate nutrition and thus sets up a vicious circle."

At high altitudes, quinua (Chenopodium quinua), beans and potatoes are grown. These form the main articles of diet of the Indian of the high plateau. Over vast areas neither vegetables nor fruit trees are to be seen. Consumption of milk and meat is practically non-existent. As a result of transport improvement, bananas and other fruit are to be seen in some markets.

The general impression which an observer obtains is that practically the whole population is definitely undernourished.

Reference should be made here to Gutiérrez Noriega's view. "As a result," he says, "there is a significant relationship between the degree of cocaism and the extent of the nutritional deficiency. Even in the same coca area, it is evident that the poorest and worst fed peoples are those who consume more coca, whereas more prosperous peoples, living in regions where agriculture is more profitable, consume much less."

Frederic Verzár goes even further : "We have no hesitation in concluding that, if there was an improvement in the nutrition of the indigenous inhabitants, the dangerous coca chewing habit would disappear."

LIVING AND WORKING CONDITIONS

The living conditions of the high-plateau Indian are unquestionably miserable, both from the social and hygienic point of view; his standard of living is without a doubt one of the lowest there is. When this aspect of the problem is considered from the angle with which we are dealing - namely from the point of view of cocaism - great care is required in any attempt to establish a relationship between cause and effect. The fact is that cocaism must not be regarded as the cause but as the result of the wretched social and hygienic conditions characteristic of the Indian's life; on the other hand, it must always be borne in mind that the coca habit, once established, plays its part in rendering adverse living conditions still worse and thus completes the vicious circle.

Theoretically, the eight-hour day is legally in force in the coca-producing countries.

Among the miners, the eight-hour day is fairly widespread. Nevertheless, in the case of underground workers, among whom the proportion of coca chewers is high (about 90%), work is interrupted at least twice a day. Fewer interruptions take place among surface workers, the reason being that there is a lower proportion of coca chewers (20-25 % or less) among them.

The legal working day is far from being strictly enforced among agricultural labourers, and one can indeed see for oneself that there is a considerable degree of irregularity in its observance. I myself was able to establish that one typical timetable is as follows : 7 a.m., work begins; 9 a.m., first rest period, which may last from 30 to 45 minutes. After this first rest period work is resumed until about 11.30 a.m., at which point the second rest period begins and lasts at least an hour and a half. At 1 p.m. work starts again and lasts until 3 p.m., when the third rest period begins, again lasting from 30 to 45 minutes. At the end of this, the last stage of the working day begins and lasts until 5 p.m.

The reason for the prolonged rest periods is the time required for selecting the leaves, preparing the bolus, adding the alkaline substance, and finally chewing. If, in addition to all this, the characteristic slowness of the Indian's movements is borne in mind, some idea will be obtained of the uneconomic use of time in relation to actual work performed. A somewhat similar situation exists among factory workers.

While it is impossible to go into this very important matter at greater length, it is nevertheless essential to evaluate capacity for work. It is generally accepted that the working capacity of the coca chewer is limited; this has been proved in the mines, in the fields and in the factories. Furthermore, we were able to establish that work of a responsible nature is not entrusted to coca chewers.

I remember how repeatedly we were told that the Indian's need for coca could be eliminated by energetic joint action consisting basically of (1) better wages; (2) a better diet; (3) education; (4) better health conditions; and (5) better working conditions. (With regard to the last point, it is usually recommended that, in the case of the peasant, there should be a properly planned agrarian reform; and, in the case of the miner and industrial worker, that the labour laws should be improved.)

EDUCATION

One of the most important of the problems that have always been present in Latin America is unquestionably that of illiteracy. The effect of a proper upbringing and education is a factor of major importance in the improvement of living conditions as a whole, in hygiene and, in general, in the social development of any group of human beings.

The various aspects of the problem of education become still more accentuated in countries with a large proportion of indigenous inhabitants. Factors such as the multiplicity of languages or dialects, age-old superstitions, the many different races, the harsh physical environment and the scarcity of adequate means of communication and transport very greatly complicate the arduous task of spreading education.

There can be no doubt that the efforts that have been made, particularly in the last few years, have led to an appreciable improvement. The struggle has been a stern one, and there is still a long road to be trodden.

The shortcomings that still exist in teaching, education and culture are all-important and take on a very special significance in connexion with the persistence of the problem of cocaism.

In numerous publications, Gutiérrez Noriega and his school have drawn attention to the serious difficulties that cocaism creates in connexion with education. As an example, the following view may be quoted : "These difficulties begin in the home; parents who chew coca are not interested in sending their children to school and even force them to acquire the habit of this drug. The majority of the teachers in rural

schools in Cuzco and Puno have told us that children with the coca habit have a very limited capacity for learning or are not interested in being educated. They add that such children are very shy, introverted, lacking in will power, and with little inclination to play... The Salesian Fathers at the Salcedo Farm also told us that they found it particularly difficult to teach children who had had the coca habit or whose fathers were coca chewers."

There is a connexion between cocaism and illiteracy; a statistical study shows that the percentage of illiterates is closely related to the quantity of coca leaves consumed.

The following figures, recorded by Gutiérrez Noriega in 1948, are sufficiently eloquent:

Region	Quantity consumed (in tons)	Percentage of illiterates
South Andean region	4.500	84
North Andean region	2.000-2.500	60-70
Coast and "montaña" */	much less	10-50

*/ Forest or semi-forest country.

In spite of all that has just been stated, it would be incorrect to say that illiteracy and lack of education are the sole causes of cocaism; there are undoubtedly other factors, many of which have already been referred to. On the other hand, it is also very important to bear in mind the determinative influence of cocaism as a factor aggravating the problem of illiteracy.

HEALTH CONDITIONS

Some of these have been referred to in earlier paragraphs, but there are others which require special mention.

Great though the efforts made in recent years to improve education in Latin America have been, it might well be said that perhaps even greater efforts have been made in connexion with the campaign for better hygiene, whether it is regarded as "the art of living in the full enjoyment of health", or as "the care of health" (Gesundheitspflege); but this is a discussion that might lead us beyond the limits

I have allotted myself. It is very difficult to define with absolute accuracy and precision what is meant by "health". In 1946, it was declared in the Constitution of the World Health Organization that "health is a state of complete physical, mental and social well-being and not merely the absence of disease"; in 1957, however, a group of experts belonging to that organization said that ideas on health and life are as vague as the idea of well-being. All this tends to explain the difficulty encountered in any effort to estimate or evaluate the state of health of a given country or region. Despite the difficulties referred to, there are methods and techniques which, if properly applied, can produce information of appreciable value.

It is a fact, and a deplorable fact, that Latin America has undoubtedly been backward in matters relating to hygiene. As Jorge Bejarano so well put it, "the word 'atraso' (backwardness), by its very bluntness, gives us an over-all impression that the country has remained behind when compared with others; that, in short, it is 'en retardo' (late)." He goes on to say that "our peoples need frankness and clarity in order to ensure that the impulse toward progress does not become dormant or paralysed".

Fortunately, Latin America has awakened to the facts and, in a gesture that does it honour, is casting aside the narrow prejudice which makes it impossible to acknowledge the existence of age-old shortcomings. Groups of conscientious health experts, fully aware of the seriousness of national and regional problems, are now examining and reviewing procedures, adjusting the aims of policy, rectifying shortcomings and are, in a word, organizing the campaign for better health. The elimination of the backwardness already referred to; the improvement of health conditions simultaneously with economic and social conditions; the reduction of the death rate, both general and specific, for the various age groups; the eradication of endemic diseases; the control of infectious diseases; prevention instead of cure - such are the main tasks entrusted to the health experts in these countries.

With regard to the methods used, reference should be made to the suggestions by Arnaldo Gabaldón : "Activities specifically connected with health should be made the subject of co-ordinated effort divided into two sectors, each with the same standing; one of these would deal with the medical care of man while the other, specializing in hygiene, would operate in the environment."

In the particular case of the coca countries, it can be shown that, generally speaking, there is an adequate supply of skilled doctors in the urban centres; but in the rural areas and in the regions far from the urban centres, it is very difficult to carry out successfully the two phases of the health campaign on the lines suggested by Arnoldo Gabaldón. The efforts made by the coca countries, especially in recent years, are worthy of high praise, but there is still a long way to go. It is imperative that every possible help should be given to these countries to enable them to make up for lost time. In any anti-cocaism programme, the health campaign must always occupy a prominent place. Furthermore, the public health offices, sanitary units and rural dispensaries should act as centres for spreading knowledge about the harmful effects of cocaism and thus play their part in a strenuous propaganda campaign.

ECONOMIC FACTORS

In 1951, Mario A. Puga described the whole tragedy of cocaism in the following words : "It must be realized that the vested interests which encourage this habit have enormous political power based on their monopoly of the land. The grower owns large estates in the inter-Andean region and in the valleys on the verges of the Amazon forest. The peasant labourers on the coca plantations are absolute slaves. In exchange for an insignificant plot some 50 yards wide and 100 yards long for each family, the vegetables produced on which are at their disposal, the peasants must work free one week a month for the feudal overlord. When they are so engaged, they receive in lieu of salary a ration of 'llipta' or 'tokra' and one pound of coca leaves a day. When working as peons they receive a daily wage of 20 Peruvian centavos, rising to 80 centavos in exceptional cases; these amounts are equivalent respectively to 10 and 40 Mexican centavos, or 3 and 12 United States cents. In addition, the peasant's family work as 'pongos' in the master's house. The pongo is a non-manumitted serf; it is a feudal institution that survives from colonial days. He is employed on domestic tasks in the estate owner's house, without payment other than food and space on the ground to sleep. Indian boys become pongos at the age of seven, and remain so until they are adult, at which point they become peons.

The United Nations Commission was able to establish that cocaism produces harmful social and economic effects, both collectively and individually. The problem becomes much more serious when the very large number of coca leaf chewers is borne in mind.

From the economic point of view the coca-chewer has a diminished general capacity for labour and displays no aptitude for specialized work requiring greater concentration or skill; he is incapable of assuming responsibility, does not possess the mental lucidity needed for certain types of work, and is more prone to industrial accidents. If to these drawbacks we add the harm done to the health of the worker and his children, some idea will be obtained of the economic damage caused by cocaism.

But there is another most important economic aspect of the matter, and that is the role of coca growing in the national economies of the producing countries. Very careful attention must be paid to this point whenever plans are made for the introduction of measures to suppress it. A very large number of people derive their incomes from growing and selling coca leaves. Many owners of large estates have invested a considerable amount of capital in the areas where it is grown; large numbers of small land-owners, tenants (arrendires, arrenderos, mejoreros, yanaconas, etc.,), sub-tenants (allegados) and peons earn their living from the same source. Furthermore, the treasuries of the countries concerned levy taxes which form an important contribution to revenue. Contrary to what many people had thought, the fiscal policy of raising taxes on coca has caused neither production nor consumption to decrease. It is reasonable to suppose that, far from solving the problem, sudden and total suppression would on the contrary create a dangerous lack of balance. For this reason the conclusion has been reached that, however desirable suppression might be, it should take place gradually and pari passu with the replacing of coca cultivation by other crops that would not be injurious and would at the same time contribute to national wealth and a better diet. Such replacement is not utopian; it is feasible and desirable from every point of view. The governments concerned should realize that the production of coca is a typical example of monoculture, with all the shortcomings and drawbacks that this implies. The fact is that coca growing benefits only a very small sector of society while doing harm to the greater part of the population. As has been stated earlier, the period of time during which its replacement should take place should be established after a very careful consideration of the numerous factors involved. Owing to the extreme complexity of the problem, the process "should not be so long as to permit the harmful continuation of the habit, nor so short as to damage the economic interest involved".

GENERAL CONCLUSIONS

1. The habit of chewing coca leaves (cocaism) is one that affects several million inhabitants of the New World.
2. It is a habit that is harmful to the person practising it; in many cases it is also harmful to the community.
3. The coca leaf contains a statistically significant proportion of toxic alkaloids, especially cocaine, its active constituent, the toxicity of which has been amply proved.
4. Even supposing that the coca leaf contains natural nutritive principles, its use as food cannot be justified owing to its high cocaine content. Moreover, the supposed nutritive properties of this plant are practically insignificant when compared with the properties of other natural products that could be grown in the same areas as those in which coca is produced.
5. The deadening of the feeling of hunger that coca produces leads to a permanent condition of under-nourishment and thus establishes a vicious circle.
6. Physical, physiological and mental alterations produced by the abuse of coca in people who chew it prevent them from attaining a higher social level.
7. The coca habit contributes to decreased economic output of work, perpetuates a very low economic level of living and is thus anti-economic.
8. It has not been possible either now or in the past to find any scientific proof of the fallacy that coca leaf chewing is necessary, or even useful, for adaptation to life at high altitudes.
9. The assertion that the indigenous peoples of the high Andean plateaux "respond differently" to the action and effects of coca has also not been proved scientifically.
10. The problem of cocaism is not an isolated phenomenon. It is the result of a series of unfavourable social, economic, cultural and hygienic factors.
11. In any campaign against cocaism - the ancient vice of the New World - it is necessary to take into account the need for better social conditions and for the improvement and wider dissemination of education. The raising of the standards of physical and moral health must be encouraged, nutrition must be improved, hygienic housing provided and the economic level raised. There must

be a fight against superstition and mistaken beliefs; working conditions must be improved; and intensive propaganda must be carried on in order to eradicate once and for all this injurious habit.

12. It is essential that the governments of the countries concerned should make a joint inquiry into the most useful reforms that could be made in legislation and in the criminal law. It is not enough to promulgate laws, decrees or regulations restricting or prohibiting coca growing; it is absolutely necessary that severe punishment should be meted out to offenders. If complete success is to be achieved, a joint policy must be carried out by all the countries concerned.

The Inter-American Conference on the Illicit Traffic in Coca Leaf and Cocaine, held at Rio de Janeiro from 21-25 March 1960, made a series of recommendations in this connexion. At the meeting of the Inter-American Consultative Group on Narcotics Control, also held at Rio de Janeiro from 27 November to 7 December 1961, the problem of coca leaf chewing was considered and a resolution was adopted in which the United Nations was invited to consider favourably requests of the governments concerned for technical assistance in organizing a seminar for the exchange of experience among the competent officials of the countries interested in the coca leaf problem; such a seminar would be most helpful in adopting the most effective approach towards the solution of this question. It is to be hoped that this regional seminar on coca leaf chewing will be held as soon as possible within the special programme for technical assistance in narcotics control set up under General Assembly resolution 1395 (XIV), in view of the great advantages it will afford to the countries concerned with this problem.

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